Government Case Study

REDUCING FRAUD AND **PROTECTING CITIZEN INFO**

About Shape

Shape Security has deflected over $1B in fraud losses for major retailers, financial institutions, airlines, and government organizations. Shape provides best-in-class cyber-defense against sophisticated automated attacks.

SHAPE

www.shapesecurity.com

Overview

How Shape Stopped Targeted and Highly Sophisticated Attacks

The US Government serves over 100 million households and processes over $2T in payment and benefits. Cyber criminals view government agencies as prime targets for large-scale automated attacks. Using credentials stolen from other websites, attackers use automation to test out large numbers of usernames and passwords with the aim of taking over citizen accounts and stealing valuable information and assets.

Cyber criminals using automated techniques and stolen credentials were able to take over half of the accounts they targeted at one US government agency. Even though the agency authenticated website visitors by challenging them with a series of questions, based on information that was supposed to be only uniquely available to the agency, and that only the account holder should be able to answer, the cyber criminals used AI to intelligently "guess" missing information required for authentication. Traditional defenses, including authentication, web application firewalls, intrusion detection and prevention services, and fraud analytics, failed to prevent these ongoing automated attacks.

The government agency under attack needed a new approach to fight fraud and deployed the Shape Solution. Using Shape, the government agency stopped the account account takeover attacks within 2 days of deploying Shape counter measures and going into full blocking mode thereby preventing hundreds of millions in cyber-fraud.

Government Agency	Account Takeover Attempts	Shape Solution
100M **HOUSEHOLDS** **300M+** **CITIZENS** **$2T** **IN BENEFITS & PAYMENTS**	• Attackers compromised extensive multi-step authentication process • Stolen passwords and personal information combined with intelligent algorithms to guess answers to authentication questions • Millions of account takeovers attempted	• Eliminated all account hijacking and saved hundreds of millions of dollars in cyber-fraud • Blocked malicious automated attacks • Protected citizen information
Loss of confidence in ability to protect citizen information	Hundreds of thousands of account takeovers	Millions of dollars in cyber fraud avoided

With full sets of stolen credentials available for purchase on darknets for as little as $5, automation makes large-scale credential stuffing attacks economically feasible.

Why Shape?

The US Government Agency evaluated anti-automation options and chose Shape Security for the company's ability to effectively and transparently stop unwanted automation at the agency's operational scale. The agency must meet citizen demands for technology that is backward compatible with legacy web applications and also comply with regulations related to accessibility. Shape's implementation team has deep skills in browser technologies and was able to work closely with the agency's security team to test and verify backward compatibility.

Shape Deployment and Defense Implementation

PHASE 1

Reconfigured application delivery controllers to route hardened pages through the ShapeShifter and validate traffic flows.

PHASE 2

Began telemetry by Shape Security-as-a-Service and activated supervised and unsupervised learning by Shape Threat Intelligence team. Developed Shape countermeasures based on gathered data.

PHASE 3

Activated Shape counter-measures in a non-blocking mode to verify countermeasure efficacy and browser compatibility

PHASE 4

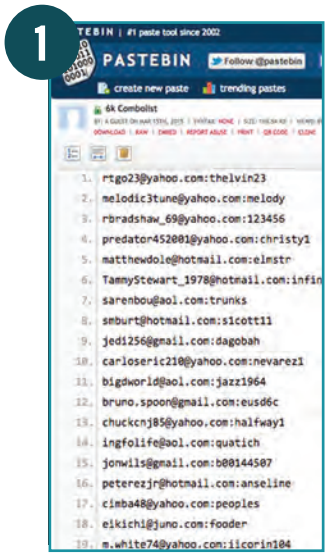
Put Shape service into production and began blocking unwanted automation

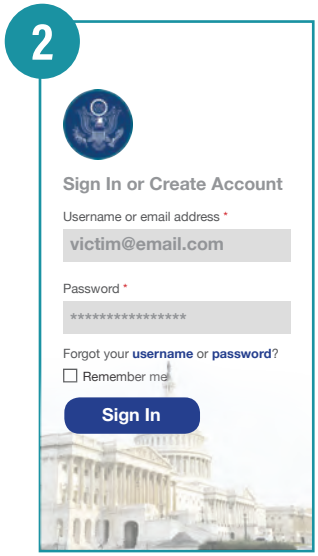
Shape Solution Benefits

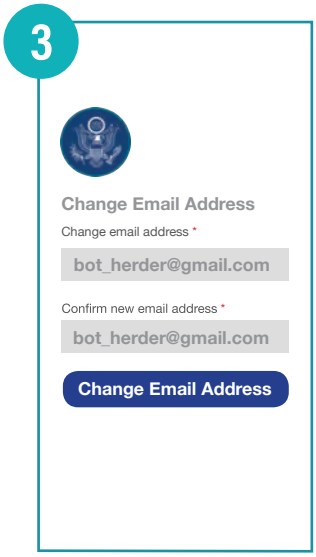
- Dramatically reduced account takeovers and associated cyber-fraud.
- Reduced fraud losses as cyber-attackers abandoned account takeover attempts once Shape began blocking unwanted automated traffic.
- Met accessibility requirements (that precluded use of CAPTCHA) by delivering transparent access for human visitors.
- Provided comprehensive attack analytics to give a clear picture of all automation attacks
- Enabled the agency to serve a broad population by offering backward compatibility with a wide variety of browsers.

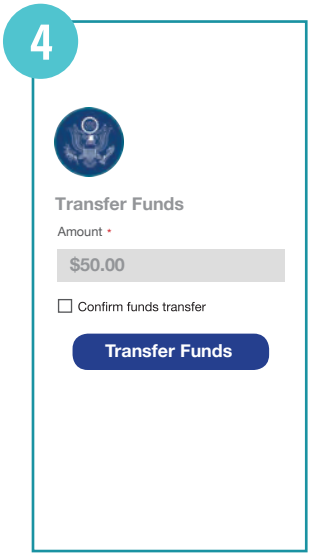
Anatomy of Attack

Stolen Credentials Combined with A.I.









STAGE 1

Attackers acquired spilled credentials from the open web of criminal marketplaces and password dump sites

STAGE 2

Attackers tested stolen passwords and personal information combined with intelligent algorithms to guess answers to authentication questions

STAGE 3

Attackers hijacked accounts when the credentials were valid

STAGE 4

Attackers then redirected payments and benefits

Conclusion

This critical government agency was able to dramatically lower account takeover and associated fraud through the deployment of Shape. Working with the agency's web application and network technologists, Shape was able to successfully integrate Shape into the the agency's web application platform while meeting all compatibility and accessibility requirements. The agency continues to benefit on an ongoing basis from Shape threat intelligence, 24/7 monitoring, counter measure updates and threat research enabling the agency to stay ahead of cyber-criminals.